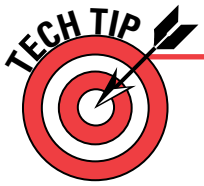
Double End Finishers

Style HD-4C • HSS, Double End, 4-Flute, Center Cutting (continued)

formerly style 582

Cutting Diameter	Decimal Equiv.	Metric Equiv.	Shank Diameter in	Shank Diameter mm	Length of Cut in	Length of Cut mm	Overall Length in	Overall Length mm	No. of Flutes	Order Number Bright	Order Number TiN	Order Number TiCN
3/4	.7500	19.05	.750	19.05	1.625	41.28	5.625	142.88	4	C41223	C33091	C33132
25/32	.7812	19.84	.875	22.23	1.875	47.63	6.125	155.58	4	C33053	C33092	–
13/16	.8125	20.64	.875	22.23	1.875	47.63	6.125	155.58	4	C33054	C33093	C33134
27/32	.8438	21.43	.875	22.23	1.875	47.63	6.125	155.58	4	C33055	C33094	C33135
7/8	.8750	22.23	.875	22.23	1.875	47.63	6.125	155.58	4	C41227	C33095	C33136
29/32	.9062	23.02	1.000	25.40	1.875	47.63	6.375	161.93	4	C33056	C33096	C33137
15/16	.9375	23.81	1.000	25.40	1.875	47.63	6.375	161.93	4	C33057	C33097	–
31/32	.9688	24.61	1.000	25.40	1.875	47.63	6.375	161.93	4	C33058	C33098	–
1	1.0000	25.40	1.000	25.40	1.875	47.63	6.375	161.93	4	C41231	C33099	C33140



End Mill Finishes and Their Applications

- Cleveland's cutting tools with TiN or TiCN coatings provide exceptional performance benefits. Coatings are matched with designs which are intended for aggressive material removal with significant increases in tool life and machining rates.
  - Coatings reduce heat and abrasion to increase tool life.
  - The increased lubricity of the coating surface reduces material adhesion and built-up edge, enabling even higher feed rates.
  - Coatings reduce the amount of torque required for machining to allow more efficient use of equipment.
  - Increase machining speeds to achieve optimum performance when using Cleveland coatings.
- Straw finish
  - bronze color
  - for general machining
  - operate at conventional cobalt speeds and heavier feed rates.
- TiN (titanium nitride) coating
  - gold color
  - intended for aggressive machining
  - increase machining speed 25% to 30% versus bright speeds
- TiCN (titanium carbonitride) coating
  - blue-gray color
  - for very aggressive machining of stainless steels and non-ferrous materials
  - extremely hard, wear resistant
  - increase machining speeds 35% to 50% versus bright speeds
- TiAlN (titanium aluminum nitride) coating
  - violet/blue-gray color
  - for aggressive machining of stainless steels, high alloy carbon steels, nickel-based high-temperature alloys, and titanium alloys
  - increase machining speeds 75% to 100% versus bright speeds.

Single End Finishers

Style HGC-4B • Cobalt, Single End, Multi-Flute, Center Cutting, Ball Nose

formerly style 560

FEATURES

- ANSI SIZES
- M42 COBALT SUBSTRATE
- GENERAL PURPOSE
- BRIGHT
- 4 FLUTE BALL CC
- TiN
- 30°
- TiCN

APPLICATIONS

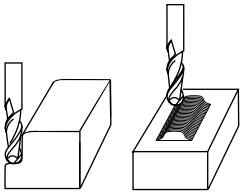
- TITANIUM ALLOYS
- NICKEL ALLOYS
- COBALT ALLOYS
- STAINLESS STEEL

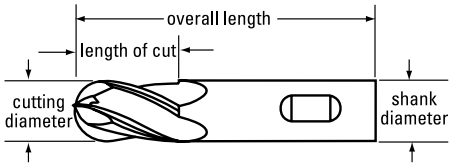
- ☑ High red hardness for high heat conditions.
- ☑ Heavy cross-section for high rigidity.

Style HGC-4B Bright

Style HGC-4B TiN-coated

Style HGC-4B TiCN-coated





Cutting Diameter	Decimal Equiv.	Metric Equiv.	Shank Diameter in	Shank Diameter mm	Length of Cut in	Length of Cut mm	Overall Length in	Overall Length mm	No. of Flutes	Order Number Bright	Order Number TiN	Order Number TiCN
1/8	.1250	3.18	.375	9.53	.375	9.53	2.313	58.74	4	C42778	C32763	C32776
3/16	.1875	4.76	.375	9.53	.500	12.70	2.375	60.33	4	C42780	C32764	C32777
1/4	.2500	6.35	.375	9.53	.625	15.88	2.438	61.91	4	C42783	C32765	C32778
5/16	.3125	7.94	.375	9.53	.750	19.05	2.500	63.50	4	C42785	C32766	C32779
3/8	.3750	9.53	.375	9.53	.750	19.05	2.500	63.50	4	C42788	C32767	C32780
1/2	.5000	12.70	.500	12.70	1.250	31.75	3.250	82.55	4	C42792	C32768	C32781
5/8	.6250	15.88	.625	15.88	1.625	41.28	3.250	82.55	4	C42795	C32769	C32782
3/4	.7500	19.05	.750	19.05	1.625	41.28	3.875	98.43	4	C42799	C32770	C32783
3/4	.7500	19.05	.750	19.05	1.625	41.28	3.875	98.43	6	C42798	C32771	C32784
1	1.0000	25.40	1.000	25.40	2.000	50.80	4.500	114.30	4	C42807	C32772	C32785
1	1.0000	25.40	1.000	25.40	2.000	50.80	4.500	114.30	6	C42806	C32773	C32786
1-1/4	1.2500	31.75	1.250	31.75	2.000	50.80	4.500	114.30	6	C32761	C32774	C32787
1-1/2	1.5000	38.10	1.250	31.75	2.000	50.80	4.500	114.30	6	C32762	C32775	C32788